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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/642,237 | 08/18/2003 | Shinichi Sugimoto | 914-171 | 3002 |
| 23117 | 7590 | 08/24/2004 | EXAMINER | |
| NIXON & VANDERHYE, PC 1100 N GLEBE ROAD 8TH FLOOR ARLINGTON, VA 22201-4714 | | | | KOCH, GEORGE R |
| ART UNIT | | PAPER NUMBER | | |
| | | 1734 | | |

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|--------------------------------|------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/642,237 | SUGIMOTO ET AL. |
| | Examiner George R. Koch III | Art Unit 1734 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 5/14/2004.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 9-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 9-11 and 15 is/are rejected.
- 7) Claim(s) 12-14 and 16-18 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. 09/865,726.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 12 objected to because of the following informalities: Line 17 of claim 12 recites “the a regular bonding step”. The word “the” should be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 9-11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishida (US Patent 5,858,806) as applied above and further in view of Inaba (US 5,243,755), and Takeshita (US Patent 6,458,236 B2).

Nishiada discloses a method of bonding by thermocompression with use of a heater head a display board and a flexible printed circuit board (see, for example, Figures 13a-d) in such a way that a first terminal electrode row of the display board and the second terminal electrode row of the flexible printed circuit board are electrically connected. The process involves applying a generic load. Such a process appears to generically control a stretch amount of the second terminal electrode row.

While Nishida does disclose much of the structure needed to provide the capability of adjusting either the load change per unit time or the heater head driving

speed, Nishida does not explicitly discloses a controller as the stretch amount controlling means for doing so or the step of wherein a load change per unit of time after said heater head starts compressing said flexible printed circuit as well as a time at which a required load is attained are controlled.

Inaba discloses a similar heated pressure head for bonding semiconductor components such as ink-jet heads wherein the controller structure (figure 32b) performs control steps by receiving inputs from the sensing means (cameras 40 and 42) and adjusts the pressing (i.e., x, y and z drivers 36a-f) in response to this input. Inaba discloses that the control unit includes programmability functions (via program disk 76) and stored data (via data disk 74). One in the art would appreciate that Nishida intends for any control step to be used and that Inaba discloses such a control step in the same field of operation (semiconductor manufacturing), and provides the capability of performing the control steps recited in Nishida. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized the controller structures of Inaba in order to provide the control step capabilities suggested in Nishida.

Furthermore, Takeshita discloses that it is known in a heater head with heater driving means apparatus to include speed control device (see column 5, lines 22-28) along with the pressure load change capabilities (column 5, lines 51-65). Such an structure would improve control over the bonding operation, also reducing misalignment of mounting and bonding portion relative to each other. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have include the speed and load change capabilities of Takeshita via the controller and control steps of

Inaba in the overall apparatus and method of Nishida with load change means in order to prevent misalignment of mounting and bonding portion relative to each other.

As to claim 10, Takeshita discloses the speed change capabilities and steps in the control structure, i.e., stabilizing the load change and the time at which the required load is attained.

As to claim 11, Nishida, Inaba and Takeshita combined would utilize a quantitative control step to control the load change and time at which the required load is attained. Such actions would be a quantitative control of the stretch amount.

As to claim 15, Inaba discloses controlling the speed of the heater head (see Fibure 32b which shows control of the drivers.)

Allowable Subject Matter

4. Claims 12-14 and 16-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and to correct the claim objections noted above.

5. The following is a statement of reasons for the indication of allowable subject matter:

Applicants arguments in the parent application (Application 09/865,726 - see Response filed 05/21/2003, especially page 2, line 10, to page 3, line 2) that JP 11-54877 does not disclose, teach or suggest controlling stretch amounts are considered persuasive. Therefore, the prior art does not teach or disclose or suggest monitoring or

calculating stretch amounts. (It is noted that in claims 9-11, and 15, there is no suggestion of monitoring stretch amounts. Instead, it appears that known control steps - controlling the speed of the heater head or the load change - controls the stretch amounts).

With regard to claim 12 and 16, the prior art of record makes no disclosure of a stretch amount calculating step of calculating the stretch amount of the second terminal row based on information obtained from the relative position determining step and a correction amount calculating step for calculating a correction amount corresponding to a difference between the stretch amounts of the first terminal electrode row and the second terminal electrode row based on the stretch amount of the second terminal electrode row.

With regard to claims 13-14 and 17-18, the prior art of record makes no disclosure of a stretch amount calculating step of calculating the stretch amount of the second terminal row based on said displacement amount and a correction amount calculating step for calculating a correction amount corresponding to a difference between the stretch amounts of the first terminal electrode row and the second terminal electrode row based on the stretch amount of the second terminal electrode row., wherein quantitative control is performed by feeding back the correction amount.

Response to Arguments

6. Applicant's arguments filed 5/14/2004 have been fully considered but they are not persuasive.

7. Applicant's response can be summed up as three points. Firstly, applicant states that the subject matter of the independent claims was patented in the parent. Secondly, the Inaba reference is directed to an unrelated field of invention, i.e., non-analogous art. Third, that the Inaba reference does not pertain to a controller structure for adjusting the pressing or having programmability. Fourth, none of the references disclose stretch amount controlling means.

8. With respect to the first argument, the basis of patentability in the parent was the stretch amount controlling means, which is not recited in the claims.

9. In response to applicant's argument that Inaba, with respect to Nishida and Takeshita, is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the correct description of the field of art is methods of assembly of electronics components. All references applied involve methods of assembly of electronics components. The mounting of flexible boards onto display boards, and the mounting of print head components, are both methods of assembling electronics components, and thus, are in the applicant's field of endeavor.

10. With respect to the argument that the Inaba reference does not pertain to a controller structure for adjusting the pressing or having programmability, it appears applicant has misread the reference, especially the brief description of the drawings, without reviewing the rest of the reference. It is noted that the entire control system of

Figure 32(b) is described in columns 27-28. Figure 32(b) uses a reference number "10" to reference the entire figure. In column 28, lines 20-22, reference number "10" is referred to as the "assembling apparatus", not a nozzle control device. Furthermore, Figures 32(a) and 32(b) clearly join (note the matching letters representing signal paths), and the structures of Figure 32(a) which connect to the control of Figure 32(b) are assembly structures.

11. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., stretch amount controlling means) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

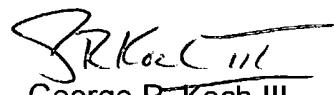
Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571) 272-1230 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-866-377-8642 and giving the operator the above TDD number. The examiner can normally be reached on M-Th 10-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GRK
February 16, 2004


MARK A. OSELE
PRIMARY EXAMINER


George R. Koch III
Patent Examiner
Art Unit 1734